

Science Sticky Knowledge

Year R

- I can talk about what I can see, hear, and feel when I am outside.
- I know how to brush my teeth and keep myself healthy e.g eating healthy food, exercise and sleep.
- I can observe the changes in our natural world, e.g. weather
- I know that the season is: Autumn/ Winter/Spring/ Summer
- I can recognise some environments that are different from the one in which I live e.g Arctic and Antarctica
- I can make observations and look closely at similarities and differences when growing plants e.g. cress / lettuce / pumpkin /sunflowers.
- I know about a simple life cycles e.g. caterpillar to butterflies

Year 1

- I can name and label the parts of a variety of common flowering plants including trees including: leaves, flowers, petals, fruit, roots, bulbs, seed, trunk, branches and stem.
- I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- I know that carnivores eat meat, herbivores eat plants and omnivores eat both meat and plants. I can name some common animals which are carnivores (fox), herbivores (cows, sheep) and omnivores (pigs, hens).
- I can describe the simple physical properties of a variety of everyday materials eg bendy/ not bendy, stretchy/ stiff, hard/ soft, rough, smooth, shiny/dull, waterproof/ not waterproof, absorbent/not absorbent, opaque/ transparent.
- I can compare and group together a variety of everyday materials (eg fabric, foil, metal, plastic, glass, water, rock) on the basis of their simple physical properties (bendy/not bendy, stretchy/stiff, hard/ soft, rough, smooth, shiny/dull, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent).
- I can tell you what the four seasons are in one year and in what order.

Year 2

- I know that seeds need water, light and a good temperature to grow and stay healthy
- I know that animals and humans have offspring that grow into adults.
- I know that animals and humans need water, air, food, shelter and sleep to survive.
- I know that different materials are used for different purposes, e.g. A window is made of glass so we can see through it and a house is made of bricks, so it is strong.

- I know and can explore things that can be classed as living, dead or never alive and I know the differences between them. For example, things that need water and food are living, leaves, twigs and feathers are dead because they used to be living and items made of plastic, metal and rocks have never been alive.
- I know that a habitat is a place where something lives and that most living things live in a habitat to which they are most suited.
- I know what a food chain is and can make a simple one using plants and animals.- for example, grass– caterpillar – bird

Year 3

- I know that animals including humans depend on different nutritionally balanced diets, which is why they don't all eat the same things.
- I know that humans and some animals have skeletons for support and protection (e.g. humans have endoskeletons that protect organs such as the heart and brain)
- I know that a fossil is physical evidence left behind by something dead for example animals, plants or animal footprints.
- I know that fossils are normally made when layers of sediment compress onto the dead animal, leaving an impression of their bones.
- I know the names of and have explored some of the parts of a flower that play a part in the life cycle, such as the petals, stamen and carpel.
- I know about pollination, seed formation and seed dispersal and can draw simple diagrams to show a plant's life cycle, which include this.
- I know that shadows are made when the light's path is blocked by an object.
- I know how to make shadows smaller and bigger by moving a light source closer to or further from and opaque object
- I know that magnets have two poles.
- I know that magnets will attract or repel, depending on their poles and I can form a prediction about this.

Year 4

- I can classify animals into vertebrates e.g. mammals, birds, fish reptiles and amphibians, or invertebrates e.g. spiders and insects.
- I know that the digestive system is designed to extract the goodness from food and get rid of the leftovers.
- I know that another way to describe the organism in a food chain is by using the terms 'predator' and 'prey'. A predator is an animal that eats other animals and the prey is the animal that is eaten by the predator.
- I know how to compare and group according to solid, liquid, gas
- I know that melting is when a solid turns into a liquid. A solid melts at a certain temperature and this is called melting point e.g. between 30-32 degrees C, lower than body temperature.
- I know that boiling point is when a liquid turns into a gas at 100 degrees c

- I know the volume of a sound varies with the size of vibrations (amplitude), the pitch with the number of vibrations per second (frequency).
- I know that materials that electric can pass through easily are called conductors and that most metals are good conductors.
- I know that materials that electricity passes poorly through or not at all are called insulators and that many plastics are insulators.

Year 5

- I know that a reversible change is when the material can be changed back to what it was before the change, such as melting boiled sweets to make biscuits
- I know that an irreversible change is when something cannot be changed back to its original form and usually a new material is formed, such as taking a raw egg and cooking it-you cannot recover the raw egg.
- I know the Earth's rotation causes day and night and when it faces the sun it is day and when it faces away from the sun it is night.
- I know different parts of the Earth experience daylight at different times - this means that it is morning, afternoon and night in different places. This is also the reason why we have time zones.
- I know that gravity is the force that pulls objects down towards the centre of the Earth.
- I know that gravity stops things floating away into space.
- I know that gestation is the period in which a mammal carries her offspring in her body before giving birth
- I know that asexual reproduction is the process where one parent produces new life where offspring are an exact copy of their parents
- I know that offspring from asexual reproduction are clones

Year 6

- I know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- I know that I have genes from both my father and my mother and yet I am not identical to my brother/sister because of 'natural variation'
- I know that Charles Darwin was a famous scientist who introduced the idea of 'natural selection' and 'survival of the fittest'
- I can give reasons for variations in how components function in a simple circuit eg. by assessing the brightness of lamps
- I know that light appears to travel in straight lines and can explain how I know this with reference to shadows
- I know that the heart, lungs and blood vessels make up the human circulatory system

- I know that arteries carry oxygenated blood, and that veins carry de-oxygenated blood
- I recognise the impact of lifestyle (including diet and exercise) on overall health
- I can use similarities and differences in observable features to decide how living things can be grouped eg. by making my own key to classify birds